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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,630

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Nobuhiro Ide

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07/17/2009

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EXAMINER

DIAZ, JOSE

ART UNIT

PAPER NUMBER

2879

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,630	Applicant(s) IDE ET AL.	
	Examiner JOSE M. DIAZ	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment, filed on March 26, 2009, has been entered and acknowledged by the Examiner.

Claims 1-13 are pending in the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 and 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2-5 and 8-9 are rejected because their dependency upon claim 1

Claim 1 does not make clear to what subject matter the formula

" $(x_1 - x_2)^2 + (y_1 - y_2)^2$ " is referring to.

Claim 1 is recites the limitation "wherein $(x_1 - x_2)^2 + (y_1 - y_2)^2$ is less than 3.1×10^{-3} " in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sugiura et al (20040012980)**, hereinafter **Sugiura**, in view of **Kido et al (20030189401)**, hereinafter **Kido**, and further in view of **Dodabalapur et al (5814416)**, **Dodabalapur hereinafter**.

Regarding **claim 1**, Sugiura clearly shows and discloses an organic light emitting device having an emission layer (4) between an anode (5) and a cathode (2), wherein the organic light emitting device has, at least either inside or outside the device, a light scattering means (11) for scattering light emitted from the emission layers (figs. 1-3, ¶s [0101], [0114]).

However, Sugiura fails to exemplify a plurality of emission layers being separated from each other by an equipotential surface forming layer or a charge generating layer.

In the same field of endeavor, Kido clearly shows and discloses a plurality of emission layers (3-1, 3-2, 3-3) being separated from each other by an equipotential surface forming layer or a charge generating layer (4-1, 4-2) (fig. 8, ¶ [0175]), in order to effectively and stably provide a device structure capable of achieving a long operational life time with a light-emission at a higher luminance.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a plurality of emission layers being separated from each other by an equipotential surface forming layer or a charge

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generating layer as taught by Kido in the device of Sugiura, in order to effectively and stably provide a device structure capable of achieving a long operational life time with a light-emission at a higher luminance.

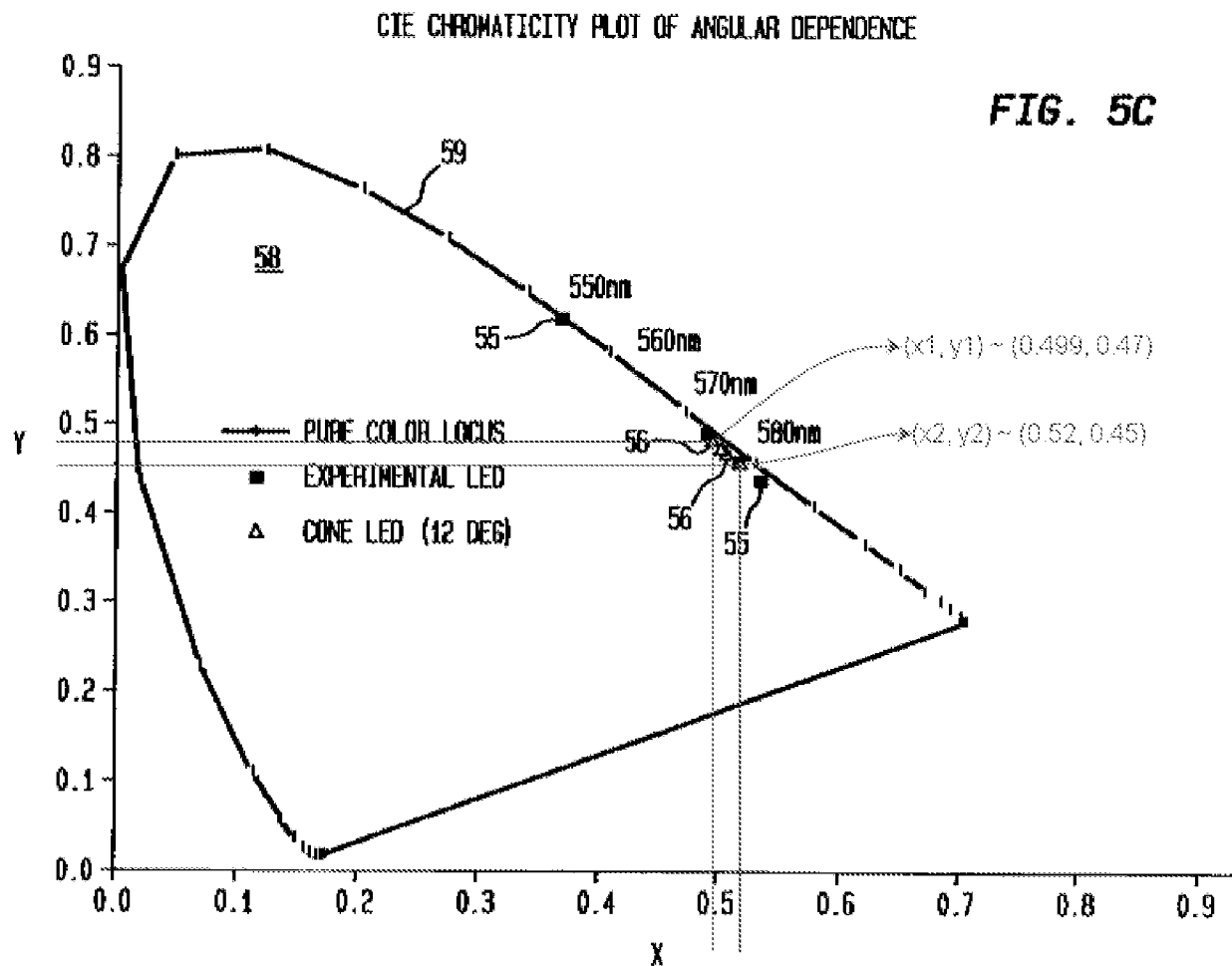
However, the combination of Sugiura and Kido fails to exemplify that

$(x_1 - x_2)^2 + (y_1 - y_2)^2$ is less than 3.1×10^{-3} , with x_1 being a CIE-x value and y_1 being a CIE-y value of a CIE chromaticity coordinate value when observed in a 0° direction and x_2 being a CIE-x value and y_2 being a CIE-y value of a CIE chromaticity coordinate value when observed in the 45° direction.

In the same field of endeavor, Dodabalapur clearly shows and discloses an organic light emitting device wherein $(x_1 - x_2)^2 + (y_1 - y_2)^2$ is less than 3.1×10^{-3} , with x_1 being a CIE-x value and y_1 being a CIE-y value of a CIE chromaticity coordinate value when observed in a 0° direction and x_2 being a CIE-x value and y_2 being a CIE-y value of a CIE chromaticity coordinate value when observed in the 45° direction (figs. 5A & 5C, ¶ [0175], col. 6, lines 44-47, col. 7, lines 24-33), in order to reduce variation in emission spectra per change in viewing angle (abstract, no hindsight is intended).

From figure 5 below it can be determine that $(x_1 - x_2)^2 + (y_1 - y_2)^2$ is satisfy to be less than 3.1×10^{-3} :

$$\therefore (x_1 - x_2)^2 + (y_1 - y_2)^2 \Rightarrow (0.499 - 0.52)^2 + (0.47 - 0.45)^2 = 0.841 \times 10^{-3}$$



Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide for $(x_1 - x_2)^2 + (y_1 - y_2)^2$ to be less than 3.1×10^{-3} as taught by Dodabalapur in the combination of Sugiura and Kido, in order to reduce variation in emission spectra per change in viewing angle.

Regarding **claim 2**, Sugiura clearly shows and discloses that the light scattering means (11) is made up by forming at least one of the anode and the cathode by a light-scattering and light-reflective electrode (12) (fig. 3, ¶ [0114]).

Regarding **claim 3**, Sugiura clearly shows and discloses that the light scattering means is made up by forming at least one of said anode (5) and said cathode (13) by an optically-transparent electrode (13) and providing a light-scattering and light-reflective element (14) on said optically-transparent electrode (13) on the opposite side of said emission layer (4) (figs. 5, ¶s [0101], [0114], [0125]).

Regarding **claim 4**, Sugiura clearly shows and discloses that the light scattering means is made up by forming at least one of the anode (5) and the cathode by a light-scattering and optically-transparent electrode (fig. 3, ¶ [0131]).

Regarding **claim 5**, Sugiura clearly shows and discloses that the light scattering means is made up by forming at least one of the anode (5) and the cathode by an optically-transparent electrode and providing a light-scattering and optically-transparent element (16) on the optically-transparent electrode on the opposite side of the emission layers (4) (fig. 3, ¶ [0131]).

Regarding **claim 8**, in the combination of Sugiura, Kido and Dodabalapur, Kido clearly shows and discloses a plurality of emission layers comprises emission layers (3-1, 3-2, 3-3) of at least two different emission colors (fig. 8, ¶ [0207]), so that a desired mixed (superimposed) color emission can be obtained.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a plurality of emission layers comprises emission layers of at least two different emission colors as taught by Kido in the already modified device of Sugiura, so that a desired mixed (superimposed) color emission can be obtained.

Regarding **claim 9**, in the combination of Sugiura, Kido and Dodabalapur, Kido clearly shows and discloses that an emission color of the organic light emitting device is white (fig. 8, ¶ [0207], claim 29), in order to provide a light-emission at a higher luminance.

Same rationale to combine from the rejection of claim 8 applies.

Claims 7, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kido et al (20030189401)**, hereinafter **Kido**, in view of **Tyan et al (20040061136)**, hereinafter **Tyan**.

Regarding **claim 7**, Kido clearly shows and discloses an organic light emitting device having a plurality of emission layers (3-1, 3-2, ...3-n) between an anode (2) and a cathode (5), the emission layers are separated from each other by an equipotential surface forming layer or a charge generating layer (4-1, 4-2,...4-n), wherein both the anode and the cathode are formed by optically-transparent electrodes (fig. 8, ¶s [0157], [0175]).

However, Kido fails to exemplify that a light reflective element being provided on one of the optically-transparent electrodes on the opposite side of the emission layers, a distance between the light reflective element and the emission layers being set to a distance where an angle dependency of light emission brightness and light emission color can be reduced.

In the same field of endeavor, Tyan clearly shows and discloses a light reflective element (composed by 26, 24, 12) being provided on one of an optically-transparent

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electrodes on the opposite side of an emission layers (figs. 11, ¶ [0049]), in order to minimize light absorption within the device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a light reflective element being provided on one of an optically-transparent electrodes on the opposite side of an emission layers as taught by Tyan in the device of Kido, in order to minimize light absorption within the device.

It is to be noted that the combination of Kido and Tyan meets all the structure limitations of the organic light emitting device. The limitation "a distance between the light reflective element and the emission layers being set to a distance where an angle dependency of light emission brightness and light emission color can be reduced" is a functional statement. Therefore the in the combination of Kido and Tyan distance between the light reflective element and the emission layers can be adapt to perform the claimed function, i.e. to reduce an angle dependency of light emission brightness and light emission color.

The following is a quotation of the MPEP 2114

APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART

>While features of an apparatus may be recited either structurally or functionally, claims< directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429,1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference

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relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971);< *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

Regarding **claim 10**, Kido clearly shows and discloses that the plurality of emission layers comprises emission layers (3-1, 3-2, 3-3) of at least two different emission colors (fig. 8, ¶ [0207]).

Regarding **claim 11**, Kido clearly shows and discloses that the emission color of the organic light emitting device is white (fig. 8, ¶ [0207], claim 29).

Regarding **claim 12**, in the combination of Kido and Tyan, Tyan discloses that in order to enhance OLED properties, if desired, optimizing layer thickness can be performed (¶ [0132]). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the distance between the light reflective element and the emission layers is in the range of about 1µm to 1mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding **claim 13**, in the combination of Kido and Tyan, Tyan discloses that the light reflecting layer (composed by 26, 24, 12) is a multilayered film (fog. 11).

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However, the combination of Kido and Tyan is silent about the multilayered film is formed of a dielectric material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the light reflecting multilayer film of a dielectric material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. Evidence of a dielectric materials used as a light reflecting layer can be found in US 20040041516 A1, ¶ [0004] “an insulating (dielectric) layer, i.e., a light reflecting layer” and in Sugiura fig. 5, ¶ [0126].

Allowable Subject Matter

Claim 6 is allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 6, the references of Prior Art of record fails to teach or suggest the combination of the limitations as set fourth in claim 6, and specifically comprising the limitation “wherein said light scattering means is made up by forming said equipotential surface forming layer or said charge generating layer so that it has a light scattering property”in combination with the remaining limitations.

This limitation has not been found, taught, or suggested by the prior art of the record which it makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments with respect to claims 1 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSE M. DIAZ whose telephone number is (571)272-

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9822. The examiner can normally be reached on 7:00 - 5:00 EST Monday-Thursday; Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/José M. Díaz/
Examiner, Art Unit 2879

/Sikha Roy/
Primary Examiner, Art Unit 2879